

CLAIMS:

1. An air compressor unit comprising:
an enclosure defining an interior volume;
a partition at least partially separating the interior volume into at least two
5 compartments, said at least two compartments including a discharge compartment and a
component compartment;
a compressor disposed within the component compartment; and
a discharge aperture in the enclosure in fluid flow communication with the
discharge compartment and providing for discharge air flow from the enclosure.
- 10 2. The unit of claim 1, further comprising an aftercooler disposed within the
enclosure, wherein the discharge compartment and component compartment are at least
partially separated by the aftercooler.
- 15 3. The unit of claim 2, wherein the aftercooler is disposed between the
compressor and the discharge aperture.
4. The unit of claim 1, wherein the component compartment further comprises
a first compartment and a second compartment.
- 20 5. The unit of claim 4, wherein the compressor is disposed within the first
compartment.
6. The unit of claim 4, wherein the compressor is powered by a motor.
- 25 7. The unit of claim 6, wherein the motor is disposed within the second
compartment.
8. The unit of claim 4, wherein the first compartment and second
30 compartment are at least partially separated by the partition.
9. The unit of claim 8, further comprising at least one passage in the partition
permitting fluid flow between the first compartment and the second compartment;

10. The unit of claim 4, further comprising at least one passage in the partition permitting fluid flow between the component compartment and the discharge compartment.

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11. The unit of claim 10, wherein the at least one passage permits fluid flow between the second compartment and the discharge compartment.

12. The unit of claim 10, further comprising a passage permitting fluid flow
10 between the first compartment and the discharge compartment.

13. The unit of claim 10, wherein the discharge compartment includes at least two inlet passages permitting fluid flow to enter the discharge compartment.

14. The unit of claim 1, further comprising a baffle projecting into the
15 discharge compartment from the enclosure, wherein the baffle is disposed between the compressor and the discharge aperture.

15. The unit of claim 1, further comprising at least one cooling air inlet in the
20 enclosure.

16. The unit of claim 15, further comprising a blower disposed near the at least one cooling air inlet, wherein the blower is powered by the motor and forces air into the enclosure through at least one cooling air inlet.

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17. The unit of claim 16, further comprising a shroud coupled to the enclosure, and at least partially covering the blower, wherein the shroud has an air intake.

18. The unit of claim 15, wherein the component compartment further
30 comprises a first compartment and a second compartment.

19. The unit of claim 18, wherein the at least one cooling air inlet includes a primary inlet and a secondary inlet, wherein the primary inlet is in fluid flow communication with the first compartment, and the motor inlet is in fluid flow communication with the second compartment.

20. The unit of claim 1, wherein the partition includes a layer of foam for absorbing noise.

21. The unit of claim 1, wherein the enclosure includes a layer of foam for absorbing noise.

22. The unit of claim 1, wherein the compressor is a reciprocating compressor.

23. An air compressor unit comprising:
a compressor and a motor disposed within the unit;
a rotary blower that draws air into the unit and generates an air flow
through the unit;
- 5 an air intake port permitting a single initial air flow to enter the unit;
a discharge aperture permitting a single final air flow to exit the unit;
multiple compartments within the unit through which an air flow passes,
wherein the multiple compartments are arranged in parallel, such that a single initial air
flow enters the unit through the intake port, the multiple compartments divide the initial air
10 flow into multiple intermediate air flows, the multiple intermediate air flows converge to
the single final air flow, and the single final air flow exits the unit through the discharge
compartment.
24. The unit of claim 23, wherein the multiple compartments include an intake
15 compartment, a first compartment, a second compartment, and a discharge compartment.
25. The unit of claim 24, wherein the air intake is in fluid flow communication
with the intake compartment, and the initial air flow enters the intake compartment
through the air intake.
- 20 26. The unit of claim 24, wherein the multiple intermediate air flows include a
first air flow and a second air flow:
the first air flow passes through the first compartment and the discharge
compartment;
- 25 the second air flow passes through the first compartment, the second
compartment, and the discharge compartment; and
the first air flow and the second air flow converge into the final air flow in
the discharge compartment.
27. The unit of claim 24, wherein the discharge aperture is in fluid flow
communication with the discharge compartment, and the final air flow exits the discharge
compartment through the discharge aperture.
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28. The unit of claim 24, wherein the compressor is disposed in the first compartment.

29. The unit of claim 24, wherein the motor is disposed in the second
5 compartment.

30. The unit of claim 24, wherein an aftercooler is disposed between the first compartment and the discharge compartment.

10 31. The unit of claim 24, wherein the rotary blower is disposed in the intake compartment.

32. The unit of claim 24, wherein a partition at least partially separates the first compartment from the second compartment, and the partition at least partially separates
15 the second compartment from the discharge compartment.

33. The unit of claim 32, wherein the partition includes a layer of noise absorbing foam.

20 34. The unit of claim 23, wherein the compressor is a reciprocating compressor.

35. An air compressor unit comprising:
an intake compartment having an air intake permitting air to enter the unit;
a blower disposed within the intake compartment drawing air into the
intake compartment through the air intake, and generating an air flow through the unit;
5 a primary inlet permitting fluid flow between the intake compartment and a
first compartment;
a secondary inlet permitting fluid flow between the intake compartment and
a second compartment;
a first passage permitting fluid flow between the first compartment and a
10 discharge compartment;
a second passage permitting fluid flow between the first compartment and a
second compartment;
a third passage permitting fluid flow between the second compartment and
the discharge compartment; and
15 a discharge aperture in fluid flow communication with the discharge
aperture, permitting air to exit the unit.
36. The unit of claim 35, further comprising a compressor disposed within the
first compartment.
- 20 37. The unit of claim 36, wherein the compressor is a reciprocating compressor.
38. The unit of claim 35, further comprising a motor disposed within the
second compartment.
- 25 39. The unit of claim 35, further comprising an aftercooler disposed near the
first passage.
40. The unit of claim 35, wherein a partition at least partially separates the first
30 compartment from the second compartment, and the partition at least partially separates
the second compartment from the discharge compartment.

41. The unit of claim 40, wherein the partition includes a layer of noise absorbing foam.